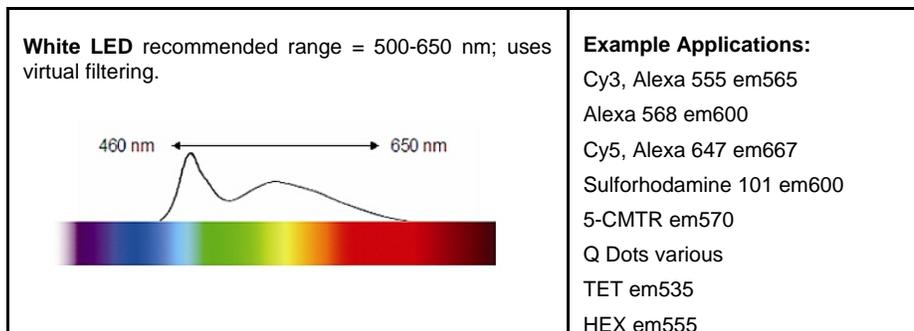


White LED Virtual Filtering

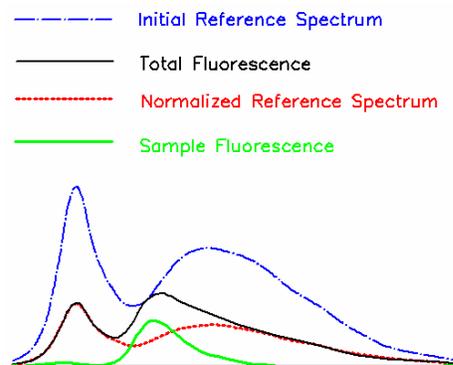
WHITE LED

In order to excite a broader range of fluorophores without the need for multiple filters, the Thermo Scientific NanoDrop™ 3300 Fluorospectrometer is equipped with a White LED source (~500-650 nm).



The White LED is composed of a Blue LED with a YAG phosphor coating that, when illuminated, produces excitation wavelengths in the green/yellow portion of the visible spectrum. Virtual filtering (patents pending) involves taking a reference “blank” spectrum as a wavelength intensity map of the White LED. Upon measuring a sample, the White LED signature is mathematically eliminated and the software displays the true fluorescence of the sample.

One of the factors making it feasible to extract the sample fluorescence by subtracting a scaled representation of the source is the inherent “off-angle” light rejection properties of the optical fiber and the reduction in scattering from directly wetted optical surfaces. An additional element making this method possible is the high reproducibility of the relative spectral output intensity vs. the wavelength of the LED. In practice, a “Virtual Emission Filtering Interval ($\Delta\lambda$)” is set for each Method created that uses the White LED.



$\Delta\lambda$

The virtual emission filter interval ($\Delta\lambda$) is the respective wavelength range over which the residual RFU signal from the sample (with scaled background compensation removal), is displayed. It is symmetrically applied around the analysis nm (emission wavelength) selected and all signal outside the virtual filter interval is set to zero (the default interval is ± 20 nm).

Note: The analysis wavelength cursor can be manually adjusted by ± 20 nm of the analysis wavelength within the measurement module. As a result, the default virtual filter emission interval will be applied to the newly established analysis wavelength.

RFU

The residual RFU signal (with background removed) is calculated and displayed over the respective wavelength range determined by the virtual emission filter interval ($\Delta\lambda$).